

MATHEMATICS – 9TH (IMPORTANT MCQS)

CHAPTER: 01

(Review Exercise 1)

01. The order of matrix $\begin{bmatrix} 2 & 1 \end{bmatrix}$ is:
 (a) 2-by-1 (b) 1-by-2 (c) 1-by-1 (d) 2-by-2
02. $\begin{bmatrix} \sqrt{2} & 0 \\ 0 & \sqrt{2} \end{bmatrix}$ is called _____ matrix.
 (a) Zero (b) Unit (c) Scalar (d) Singular
03. Which is order of a square matrix?
 (a) 2-by-2 (b) 1-by-2 (c) 2-by-1 (d) 3-by-2
04. Order of transpose of $\begin{bmatrix} 2 & 1 \\ 0 & 1 \\ 3 & 2 \end{bmatrix}$ is:
 (a) 3-by-2 (b) 2-by-3 (c) 1-by-3 (d) 3-by-1
05. Ad joint of $\begin{bmatrix} 1 & 2 \\ 0 & -1 \end{bmatrix}$ is:
 (a) $\begin{bmatrix} -1 & -2 \\ 0 & 1 \end{bmatrix}$ (b) $\begin{bmatrix} 1 & -2 \\ 0 & -1 \end{bmatrix}$ (c) $\begin{bmatrix} -1 & 2 \\ 0 & -1 \end{bmatrix}$ (d) $\begin{bmatrix} -1 & 0 \\ 2 & 1 \end{bmatrix}$
06. Product of $\begin{bmatrix} x & y \end{bmatrix} \begin{bmatrix} 2 \\ -1 \end{bmatrix}$ is:
 (a) $[2x + y]$ (b) $[x - 2y]$ (c) $[2x - y]$ (d) $[x + 2y]$
07. If $\begin{vmatrix} 2 & 6 \\ 3 & x \end{vmatrix} = 0$ then x is equal to:
 (a) 9 (b) -6 (c) 6 (d) -9
08. If $X + \begin{bmatrix} -1 & -2 \\ 0 & -1 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then X is equal to:
 (a) $\begin{bmatrix} 2 & 2 \\ 2 & 0 \end{bmatrix}$ (b) $\begin{bmatrix} 0 & 2 \\ 2 & 2 \end{bmatrix}$ (c) $\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$ (d) $\begin{bmatrix} 2 & 2 \\ 0 & 2 \end{bmatrix}$

CHAPTER: 02

(Review Exercise 2)

01. $(27x^{-1})^{-\frac{2}{3}} =$ _____
 (a) $\frac{\sqrt[3]{x^2}}{9}$ (b) $\frac{\sqrt{x^3}}{9}$ (c) $\frac{\sqrt[3]{x^2}}{8}$ (d) $\frac{\sqrt{x^3}}{8}$
02. Write $\sqrt[7]{x}$ in exponential form:
 (a) x (b) x^7 (c) $x^{1/7}$ (d) $x^{7/2}$
03. Write $4^{2/3}$ with radical sign:
 (a) $\sqrt[3]{4^2}$ (b) $\sqrt[4]{3}$ (c) $\sqrt[2]{4^3}$ (d) $\sqrt[4]{6}$
04. In $\sqrt[3]{35}$ the radicand is:
 (a) 3 (b) $\frac{1}{3}$ (c) 35 (d) None of these

05. $\left(\frac{25}{16}\right)^{\frac{1}{2}} =$ _____
 (a) $\frac{5}{4}$ (b) $\frac{4}{5}$ (c) $-\frac{5}{4}$ (d) $-\frac{4}{5}$
06. The conjugate of $5+4i$ is:
 (a) $-5+4i$ (b) $-5-4i$ (c) $5-4i$ (d) $5+4i$
07. The value of i^9 is:
 (a) 1 (b) -1 (c) i (d) $-i$
08. Every real number is:
 (a) A positive integer (b) A rational number (c) A negative integer (d) A complex number
09. Real part of $2ab(i+i^2)$ is:
 (a) $2ab$ (b) $-2ab$ (c) $2abi$ (d) $-2abi$
10. Imaginary part of $-i(3i+2)$ is:
 (a) -2 (b) 2 (c) 3 (d) -3
11. Which of the following sets have the closure property w.r.t addition?
 (a) $\{0\}$ (b) $\{0, -1\}$ (c) $\{0, 1\}$ (d) $\left\{1, \sqrt{2}, \frac{1}{2}\right\}$
12. Name the property of real numbers used in $\left(-\frac{\sqrt{5}}{2}\right) \times 1 = -\frac{\sqrt{5}}{2}$:
 (a) Additive identity (b) Additive inverse (c) Multiplicative identity (d) Multiplicative inverse
13. If $x, y, z \in \mathbb{R}, z < 0$, then $x < y \Rightarrow$ _____:
 (a) $xz < yz$ (b) $xz > yz$ (c) $xz = yz$ (d) None of these
14. If $a, b \in \mathbb{R}$ then only one of $a = b$ or $a < b$ or $a > b$ holds is called:
 (a) Trichotomy property (b) Transitive property (c) Additive property (d) Multiplicative property
15. A non-terminating, non-recurring decimal represents:
 (a) A natural number (b) A rational number (c) An irrational number (d) A prime number

CHAPTER: 03

(Review Exercise 3)

01. If $a^x = n$, then:
 (a) $a = \log_x n$ (b) $x = \log_n a$ (c) $x = \log_a n$ (d) $a = \log_n x$
02. The relation $y = \log_z x$ implies:
 (a) $x^y = z$ (b) $z^y = x$ (c) $x^z = y$ (d) $y^z = x$
03. The logarithm of unity to any base is:
 (a) 1 (b) 10 (c) e (d) 0
04. The logarithm of any number to itself as base is:
 (a) 1 (b) 0 (c) -1 (d) 10
05. $\log_e =$ _____ where $e \approx 2.718$:
 (a) 0 (b) 0.4343 (c) ∞ (d) 1
06. The value of $\log\left(\frac{p}{q}\right)$ is:
 (a) $\log p - \log q$ (b) $\frac{\log p}{\log q}$ (c) $\log p + \log q$ (d) $\log q - \log p$
07. $\log p - \log q$ is same as:
 (a) $\log\left(\frac{q}{p}\right)$ (b) $\log(p-q)$ (c) $\frac{\log p}{\log q}$ (d) $\log\left(\frac{p}{q}\right)$
08. $\log(m^n)$ can be written as:
 (a) $(\log m)^n$ (b) $m \log n$ (c) $n \log m$ (d) $\log(mn)$
09. $\log_b a \times \log_c b$ can be written as:

- (a) $\log_a c$ (b) $\log_c a$ (c) $\log_a b$ (d) $\log_b c$

10. $\log_y x$ will be equal to:

- (a) $\frac{\log_z x}{\log_y z}$ (b) $\frac{\log_x z}{\log_y z}$ (c) $\frac{\log_z x}{\log_z y}$ (d) $\frac{\log_z y}{\log_z x}$

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CHAPTER: 04

(Review Exercise 4)

01. $4x + 3y - 2$ is an algebraic:

- (a) Expression (b) Sentence (c) Equation (d) In equation

02. The degree of polynomial $4x^4 + 2x^2y$ is:

- (a) 1 (b) 2 (c) 3 (d) 4

03. $a^3 + b^3$ is equal to:

- (a) $(a-b)(a^2 + ab + b^2)$ (b) $(a+b)(a^2 - ab + b^2)$ (c) $(a-b)(a^2 - ab + b^2)$ (d) $(a-b)(a^2 + ab - b^2)$

04. $(3 + \sqrt{2})(3 - \sqrt{2})$ is equal to:

- (a) 7 (b) -7 (c) -1 (d) 1

05. Conjugate of surd $a + \sqrt{b}$ is:

- (a) $-a + \sqrt{b}$ (b) $a - \sqrt{b}$ (c) $\sqrt{a} + \sqrt{b}$ (d) $\sqrt{a} - \sqrt{b}$

06. $\frac{1}{a-b} - \frac{1}{a+b}$ is equal to:

- (a) $\frac{2a}{a^2 - b^2}$ (b) $\frac{2b}{a^2 - b^2}$ (c) $\frac{-2a}{a^2 - b^2}$ (d) $\frac{-2b}{a^2 - b^2}$

07. $\frac{a^2 - b^2}{a+b}$ is equal to:

- (a) $(a-b)^2$ (b) $(a+b)^2$ (c) $a+b$ (d) $a-b$

08. $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$ is equal to:

- (a) $a^2 + b^2$ (b) $a^2 - b^2$ (c) $a-b$ (d) $a+b$

CHAPTER: 05

(Review Exercise 5)

01. The factors of $x^2 - 5x + 6$:

- (a) $x+1, x-6$ (b) $x-2, x-3$ (c) $x+6, x-1$ (d) $x+2, x+3$

02. Factors of $8x^3 + 27y^3$ are:

- (a) $(2x+3y), (4x^2 + 9y^2)$ (b) $(2x-3y), (4x^2 - 9y^2)$
(c) $(2x+3y), (4x^2 - 6xy + 9y^2)$ (d) $(2x-3y), (4x^2 + 6xy + 9y^2)$

03. Factors of $3x^2 - x - 2$ are:

- (a) $(x+1), (3x-2)$ (b) $(x+1), (3x+2)$ (c) $(x-1), (3x-2)$ (d) $(x-1), (3x+2)$

04. Factors of $a^4 - 4b^4$ are:

- (a) $(a-b), (a+b), (a^2 + 4b^2)$ (b) $(a^2 - 2b^2), (a^2 + 2b^2)$

- (c) $(a-b), (a+b), (a^2-4b^2)$ (d) $(a-2b), (a^2+2b^2)$
05. What will be added to complete the square of $9a^2 - 12ab$?
 (a) $-16b^2$ (b) $16b^2$ (c) $4b^2$ (d) $-4b^2$
06. Find m so that $x^2 + 4x + m$ is a complete square.
 (a) 8 (b) -8 (c) 4 (d) 16
07. Factors of $5x^2 - 17xy - 12y^2$ are:
 (a) $(x+4y), (5x+3y)$ (b) $(x-4y), (5x-3y)$ (c) $(x-4y), (5x+3y)$ (d) $(5x-4y), (x+3y)$
08. Factors of $27x^3 - \frac{1}{x^3}$ are:
 (a) $\left(3x - \frac{1}{x}\right), \left(9x^2 + 3 + \frac{1}{x^2}\right)$ (b) $\left(3x + \frac{1}{x}\right), \left(9x^2 + 3 + \frac{1}{x^2}\right)$
 (c) $\left(3x - \frac{1}{x}\right), \left(9x^2 - 3 + \frac{1}{x^2}\right)$ (d) $\left(3x + \frac{1}{x}\right), \left(9x^2 - 3 + \frac{1}{x^2}\right)$

CHAPTER: 06

(Review Exercise 6)

01. H.C.F of $p^3q - pq^3$ and $p^5q^2 - p^2q^5$ is:
 (a) $pq(p^2 - q^2)$ (b) $pq(p - q)$ (c) $p^2q^2(p - q)$ (d) $pq(p^3 - q^3)$
02. H.C.F of $5x^2y^2$ and $20x^3y^3$ is:
 (a) $5x^2y^2$ (b) $20x^3y^3$ (c) $100x^5y^5$ (d) $5xy$
03. H.C.F of $x - 2$ and $x^2 + x - 6$ is:
 (a) $x^2 + x - 6$ (b) $x + 3$ (c) $x - 2$ (d) $x + 2$
04. H.C.F of $a^3 + b^3$ and $a^2 - ab + b^2$ is:
 (a) $a + b$ (b) $a^2 - ab + b^2$ (c) $(a - b)^2$ (d) $a^2 + b^2$
05. H.C.F of $x^2 - 5x + 6$ and $x^2 - x - 6$ is:
 (a) $x - 3$ (b) $x + 2$ (c) $x^2 - 4$ (d) $x - 2$
06. H.C.F of $a^2 - b^2$ and $a^3 - b^3$ is:
 (a) $a - b$ (b) $a + b$ (c) $a^2 + ab + b^2$ (d) $a^2 - ab + b^2$
07. H.C.F of $x^2 + 3x + 2$, $x^2 + 4x + 3$ and $x^2 + 5x + 4$ is:
 (a) $x + 1$ (b) $(x + 1)(x + 2)$ (c) $x + 3$ (d) $(x + 4)(x + 1)$
08. L.C.M of $15x^2$, $45xy$ and $30xyz$ is:
 (a) $90xyz$ (b) $90x^2yz$ (c) $15xyz$ (d) $15x^2yz$
09. L.C.M of $a^2 + b^2$ and $a^4 - b^4$ is:
 (a) $a^2 + b^2$ (b) $a^2 - b^2$ (c) $a^4 - b^4$ (d) $a - b$
10. The product of two algebraic expressions is equal to the _____ of their H.C.F.
 (a) Sum (b) Difference (c) Product (d) Quotient
11. Simplify $\frac{a}{9a^2 - b^2} + \frac{1}{3a - b} = \dots\dots$
 (a) $\frac{4a}{9a^2 - b^2}$ (b) $\frac{4a - b}{9a^2 - b^2}$ (c) $\frac{4a + b}{9a^2 - b^2}$ (d) $\frac{b}{9a^2 - b^2}$
12. Simplify $\frac{a^2 + 5a - 14}{a^2 - 3a - 18} \times \frac{a + 3}{a - 2} = \dots\dots$
 (a) $\frac{a + 7}{a - 6}$ (b) $\frac{a + 7}{a - 2}$ (c) $\frac{a + 3}{a - 6}$ (d) $\frac{a - 2}{a + 3}$

13. Simplify $\frac{a^3 - b^3}{a^4 - b^4} + \frac{a^2 + ab + b^2}{a^2 + b^2} =$ _____
 (a) $\frac{1}{a+b}$ (b) $\frac{1}{a-b}$ (c) $\frac{a-b}{a^2+b^2}$ (d) $\frac{a+b}{a^2+b^2}$
14. Simplify $\left(\frac{2x+y}{x+y} - 1\right) + \left(1 - \frac{x}{x+y}\right) =$ _____
 (a) $\frac{x}{x+y}$ (b) $\frac{y}{x+y}$ (c) $\frac{y}{x}$ (d) $\frac{x}{y}$
15. The square root of $a^2 - 2a + 1$ is:
 (a) $\pm(a+1)$ (b) $\pm(a-1)$ (c) $a-1$ (d) $a+1$
16. What would be added to complete the square of $x^4 + 64$?
 (a) $8x^2$ (b) $-8x^2$ (c) $16x^2$ (d) $4x^2$
17. The square root of $x^4 + \frac{1}{x^4} + 2$ is:
 (a) $\pm\left(x + \frac{1}{x}\right)$ (b) $\pm\left(x^2 + \frac{1}{x^2}\right)$ (c) $\pm\left(x - \frac{1}{x}\right)$ (d) $\pm\left(x^2 - \frac{1}{x^2}\right)$

CHAPTER: 07

(Review Exercise 7)

01. Which of the following is the solution of the inequality $3 - 4x \leq 11$?
 (a) -8 (b) -2 (c) $-\frac{14}{4}$ (d) None of these
02. A statement involving any of the symbols $<$, $>$, \leq or \geq is called:
 (a) Equation (b) Identity (c) Inequality (d) Linear equation
03. $x =$ _____ is a solution of the inequality $-2 < x < \frac{3}{2}$.
 (a) -5 (b) 3 (c) 0 (d) $\frac{3}{2}$
04. If x is no longer than 10, then:
 (a) $x \geq 8$ (b) $x \leq 10$ (c) $x < 10$ (d) $x > 10$
05. If the capacity 'c' of an elevator is at most 1600 pounds, then:
 (a) $c < 1600$ (b) $c \geq 1600$ (c) $c \leq 1600$ (d) $c > 1600$
06. $x = 0$ is a solution of the inequality:
 (a) $x > 0$ (b) $3x + 5 < 0$ (c) $x + 2 < 0$ (d) $x - 2 < 0$

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CHAPTER: 08

(Review Exercise 8)

01. If $(x-1, y+1) = (0, 0)$ then (x, y) is:
 (a) $(1, -1)$ (b) $(-1, 1)$ (c) $(1, 1)$ (d) $(-1, -1)$
02. If $(x, 0) = (0, y)$ then (x, y) is:

- (a) (0,1) (b) (1,0) **(c)** (0,0) (d) (1,1)
03. Point (2, -3) lies in quadrant:
 (a) I (b) II (c) III **(d)** IV
04. Point (-3, -3) lies in quadrant:
 (a) I (b) II **(c)** III (d) IV
05. If $y = 2x + 1$, $x = 2$ then y is:
 (a) 2 (b) 3 (c) 4 **(d)** 5
06. Which ordered pair satisfies the equation $y = 2x$?
(a) 2 (b) 3 (c) 4 (d) 5

CHAPTER: 09

(Review Exercise 9)

01. Distance between points (0,0) and (1,1) is:
 (a) 0 (b) 1 (c) 2 **(d)** $\sqrt{2}$
02. Distance between the points (1,0) and (0,1) is:
 (a) 0 (b) 1 **(c)** $\sqrt{2}$ (d) 2
03. Mid-point of the points (2,2) and (0,0) is:
(a) (1,1) (b) (1,0) (c) (0,1) (d) (-1,-1)
04. Mid-point of the points (2,-2) and (-2,2) is:
 (a) (2,2) (b) (-2,-2) **(c)** (0,0) (d) (1,1)
05. A triangle having all sides equal is called:
 (a) Isosceles (b) Scalene **(c)** Equilateral (d) None of these
06. A triangle having all sides different is called:
 (a) Isosceles **(b)** Scalene (c) Equilateral (d) None of these

CHAPTER: 17

(Review Exercise 17)

01. A triangle having two sides congruent is called:
 (a) Scalene (b) Right angled (c) Equilateral **(d)** Isosceles
02. A quadrilateral having each angle equal to 90° is called:
 (a) Parallelogram **(b)** Rectangle (c) Trapezium (d) Rhombus
03. The right bisectors of the three sides of a triangle are:
 (a) Congruent (b) Collinear **(c)** Concurrent (d) Parallel
04. The _____ altitudes of an isosceles triangle are congruent.
(a) Two (b) Three (c) Four (d) None
05. A point equidistant from the end points of a line segment is on its:
 (a) Bisector **(b)** Right bisector (c) Perpendicular (d) Median
06. _____ congruent triangles can be made by joining the mid-point of the sides of a triangle.
 (a) Three **(b)** Four (c) Five (d) Two
07. The diagonals of a parallelogram _____ each other.
(a) Bisect (b) Trisect (c) Bisect at right angle (d) None of these
08. The medians of a triangle cut each other in the ratio:
 (a) 4:1 (b) 3:1 **(c)** 2:1 (d) 1:1
09. One angle on the base of an isosceles triangle is 30° . What is the measure of its vertical angle?
 (a) 30° (b) 60° (c) 90° **(d)** 120°
10. If the three altitude of a triangle are congruent, then the triangle is:
(a) Equilateral (b) Right angled (c) Isosceles (d) Acute angled
11. If two medians of a triangle are congruent then the triangle will be:
(a) Isosceles (b) Equilateral (c) Right angled (d) Acute angled